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Evaluation of anti-viral activity of *Jatropha curcas* leaf extracts against potentially drug-resistant HIV isolates

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Background

Drug-resistant HIV, a major global concern, warrants the development of novel anti-virals as alternative and inexpensive therapy. In the current study, we isolated potentially drug-resistant HIV and assessed previously unreported anti-viral activity of *Jatropha curcas* leaf extracts.

Methods

In vitro micro-co-culture was employed for virus isolation followed by drug susceptibility assays to determine resistance to Azidothymidine (AZT) and Lamivudine (3TC).

*Jatropha curcas*leaves were extracted using Soxhlet apparatus. Methanolic (ME) and aqueous (AE) extracts were chosen for further study. Secondary metabolites were detected by High-Performance Thin Laye rChromatography and *in vitro* cytotoxicity established by MTT assay. Anti-viral activity was evaluated by p24 inhibitionin post- and pre-infection interaction studies.

Results

Seven HIV isolates were obtained (isolation rate: 23.33%) with drug IC_{50} values ranging from 0.001418-82.73 μM AZT and 2.645-15.35 μM 3TC.

Tannins, flavonoids, saponins were detected in AE and flavonoids, saponins in ME while CC_{50} values were 32.07 mg/mL AE and 35.5 mg/mL ME.

In post-infection studies (4 isolates), IC_{50} values were ranging from 0.0255-0.4137 mg/mL AE and 0.00073-0.1278 mg/mL ME; pre-infection studies (1 isolate) showed 100% p24 inhibition by ME and 97.19% p24 inhibition by AE at 25 mg/mL each.

Conclusion

HIV isolates potentially resistant to AZT/3TC were obtained; genotypic drug resistance is being ascertained. *Jatropha curcas* leaf extracts showed effective anti-viral and probable entry inhibition activity against potentially drug-resistant HIV, which has not been reported earlier. We conclude that *Jatropha curcas*is a good candidate for anti-HIV therapy with further research.

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